WSDOT Test Method T 812

Method of Test for Measuring Length of Drilled Concrete Cores

1. SCOPE

   a. This method is for the WSDOT ten point callipering device it is similar to AASHTO T-148 and covers the procedure for determining the length of a core drilled from a concrete structure, and from Portland cement concrete pavement. It is acceptable to use the commercially available nine point callipering device defined in AASHTO T 148.

2. APPARATUS

   a. The apparatus shall be a callipering device that will measure the length of axial elements of the core. While the details of the mechanical design are not prescribed, the apparatus shall conform to the requirements of 2 (B) to 2 (F).

   b. The apparatus shall be designed so that the specimen will be held with its axis in a vertical position by three symmetrically placed supports bearing against the lower end. These supports shall be short posts or stubs of hardened steel, and the ends that bear against the surface of the specimen shall be rounded to a diameter of not less than ¼ inch more than ½ inch.

   c. The apparatus shall provide for the accommodation of specimens of different nominal lengths. (A range of at least 9 to 12 inches.)

   d. The callipering apparatus shall be designed so that it will be possible to make a length measurement at the center of the upper end of the specimen and at nine additional points (See Note 1) spaced at equal intervals along the circumference of a circle whose center point coincides with that of the end area of the specimen and whose radius is not less than one-half nor more than three-fourths of the radius of the specimen.

      Note 1: Commercially available nine point callipering device is acceptable.

   e. The measuring rod or other device that makes contact with the end surface of the specimen for measurement shall be rounded to a radius of ⅛ inch. The scale on which the length readings are made shall be marked with clear, definite, accurately-spaced graduations. The spacing of the graduations shall be 0.10 inch or a decimal part thereof.

   f. The apparatus shall be stable and sufficiently rigid to maintain its shape and alignment without a distortion or deflection of more than 0.01 inch during all normal measuring operations.

3. TEST SPECIMENS

a. Cores used as specimens for length measurement shall be in every way representative of the concrete in the structure from which they are removed. The specimen shall be drilled with the axis normal to the surface of the structure, and the ends shall be free from all conditions not typical of the surfaces of the structure. Cores that show abnormal defects or that have been damaged appreciably in the drilling operation shall not be used.

4. PROCEDURE

a. Before any measurement of the core length is made, the apparatus is calibrated with suitable gauges so that errors caused by mechanical imperfections in the apparatus are known. When these errors exceed 0.01 inch, suitable corrections are applied to the core length measurements.

b. The specimen is placed in the measuring apparatus with the smoothest end of the core facing down, to bear against the three hardened-steel supports. The specimen is placed on the supports so that the central measuring position of the measuring apparatus is directly over the mid-point of the upper end of the specimen.

c. Ten measurements (See Note 2) of the length are made on each specimen, one at the central position and one each at nine additional positions spaced at equal intervals along the circumference of a circle of measurement as described in 2(D). Each of these ten measurements is read directly to 0.10 inch and to 0.01 inch either directly or by estimation.

Note 2: For commercially available callipering devices nine measurements is allowed.

d. If, in the course of the measuring operation, it is discovered that at one or more of the measuring points the surface of the specimen is not representative of the general plane of the core end because of a small projection or depression, rotate the specimen slightly about its axis, and make a complete set of nine measurements in the new position.

5. REPORT

a. The individual observations are recorded to the nearest 0.01 inch and the average of the ten measurements (See Note 3), expressed to the nearest 0.01 foot, are reported on DOT Form No. 350-067 under the column “Measured Thickness.”

Note 3: For commercially available callipering devices average nine measurements.

Performance Exam Checklist

Method T 812 Checklist
Measuring Length of PCC Cores

Participant Name _____ Exam Date _____

Procedure Element	Yes	No
1. Only concrete measured?	❒	❒
2. Damaged cores not measured?	❒	❒
3. Apparatus calibrated?	❒	❒
4. Smooth (top) end of core set on pins?	❒	❒
5. Center probe located at center of core?	❒	❒
6. Ten measurements taken?	❒	❒
7. Measurements read to 0.10 in. directly?	❒	❒
8. Measurements read indirectly to 0.01 in.?	❒	❒
9. Measurements recorded to 0.01 in.?	❒	❒
10. Averaged and reported to 0.01 foot?	❒	❒

First attempt: Pass ❒ Fail ❒ Second attempt: Pass ❒ Fail ❒

Signature of Examiner _____

Comments: